

REDISCOVERY OF THE RARE COCCINELLID *MICRASPIS FLAVOVITTATA* (CROTCH, 1874) IN WESTERN VICTORIA (COLEOPTERA: COCCINELLIDAE)

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Abstract

Micraspis flavovittata (Crotch, 1874), a distinctive yellow and black Australian ladybird that has not been collected for more than 60 years, is reported in numbers from western Victoria. Notes are provided on pollen-feeding and other aspects of its biology.

Introduction

The distinctive, yellow and black coccinellid beetle *Micraspis flavovittata* (Crotch, 1874) was described 141 years ago from one specimen from ‘Melbourne’ in the Natural History Museum, London (BMNH). Since then only three specimens have been recorded, all collected by the early Victorian coleopterist F. E. Wilson. Two are from Narbethong in 1949 (in Museum of Victoria (MV)) and one from Kallista in 1944 (specimen missing); both localities are a little to the north-east of Melbourne city (Pope 1989, Atlas of Living Australia 2015, Ken Walker pers. comm.). It is not represented in the Australian National Insect Collection (ANIC) and is not illustrated in a recent monograph of the family (Slipinski 2007). The original type is not dated but was clearly collected before 1853, which is when its accession was registered by the Natural History Museum (Pope 1989).

The author visited the Discovery Bay Coastal Park (Fig. 1) in western Victoria in 2008 and discovered a thriving colony of the endangered Ancient Greenling damselfly, *Hemiphysalia mirabilis* Selys, 1869, in Long Swamp (Richter 2009). Other Odonata rare in Victoria were also found at Discovery Bay (e.g. *Austroagrion cyane* (Selys, 1876) and *Austrothemis nigrescens* (Martin, 1901)), many being species previously known only much further east. Subsequent visits have been made once or twice each season since 2008.

In October 2014, I visited Mcfarlanes Swamp within the Discovery Bay CP (an area only visited once before, in February 2009 when the ground was very dry). A yellow and black coccinellid was found to be common on vegetation in standing water (mostly water ribbons, *Triglochin cf. procerum* R.Br.: Juncaginaceae) and was photographed (Fig. 2). This was subsequently identified by Dr Roger Booth, a coccinellid taxonomist at the BMNH, as the long-lost *Micraspis flavovittata*. More adults, as well as larvae, were observed on later visits as detailed below.

There are about 30 species in the Old World genus *Micraspis* Chevrolat, six of which occur in Australia (Pope 1989, Slipinski 2007). *Micraspis frenata* (Erichson, 1842) is common and widespread and is the only Australian species that has been studied in detail. Although members of the genus are considered to be basically aphid feeders, *A. frenata* adults have been shown

to feed on nectar (Hawkeswood 1994) and on grass pollen (Hawkeswood and Turner 2002). Anderson and Hales (1983) observed adult and larval development of the same species on both aphids and pollen in the field and were able to rear it in the laboratory on powdered honeybee brood. Thus there is a tendency to polyphagy in the genus.

Collection and behavioural observations

5 October, 2014. About 40 individual adults were seen at Mcfarlanes Swamp (38.0720°S, 141.0657°E). Almost all were on the broad leaves of the water ribbon plant, which was flowering profusely at the time. Larvae were neither searched for nor noticed.

29-30 November, 2014. Only a few adults were seen at Mcfarlanes Swamp on the first day but about 20 larvae were seen in the same situation and were assumed to be *M. flavovittata*. The following day at Long Swamp (38.1034°S, 141.1054°E), two adults and about eight larvae were seen in the same habitat as at Mcfarlanes Swamp.

4-5 April, 2015. Mcfarlanes Swamp was visited in the late afternoon of April 4 but no beetles were observed. On April 5 at Long Swamp no beetles were active at the original site but a search further west (38.0927°S, 141.0928°E) located three adults and one larva active and 20-30 were seen sheltering in between the tightly packed leaves near the base of bull-rush plants (*Typha domingensis* Pers.: Typhaceae). Voucher specimens were collected for lodgement in the MV and ANIC.

Most adult beetles in October were seen on the long leaves of water ribbons. They were usually stationary but when disturbed would run along the leaf or hide on the underside. There was no obvious insect prey such as aphids or scale insects present. It was not clear if they were feeding on material on the leaves but there might have been scattered pollen present. One adult was found in the pollen-covered head of another aquatic plant, where it appeared to be feeding (Fig. 3). Several others appeared covered with some pollen, indicating that they most likely at least supplement their diet with pollen.

On the return visit in November, larvae were more closely observed. They were seen on the water ribbons as well as a spike rush (*Baumea arthropophylla* Nees (Boeck.): Cyperaceae) that is common in the swamp. Here they appeared to be feeding on sections of the stem where the rush had been damaged and was oozing liquid (Fig. 4). One larva that crawled on to my hand during photography bit the skin actively without puncturing it (Fig. 5).

On the April visit the sky was mostly overcast and the temperature scarcely above 16°C. Beetle activity was low and many were observed sheltering in the bull-rush (possibly where they might hibernate over winter). There were from 1 to 3 adults on some bull-rush plants, particularly older plants with dead outer leaves but not obviously in contact aggregations as defined by Hales *et al.* (1986). No prey was obvious and little pollen was available.



Figs 1-5. (1), Mcfarlanes Swamp in the Discovery Bay Coastal Park, eastern Victoria. (2-5), *Micraspis flavovittata*: (2) adult on leaf of *Triglochin cf. procerum*; (3) adult apparently feeding on pollen on flower-spike of an unknown plant; (4) larva apparently feeding on exudate from injury of a rush stem; (5) larva biting surface of human skin.

Discussion

The new records are about 340 km west of the original type locality of Melbourne and almost 400 km west of the only records within a century from Narbethong and Kallista. Thus this is a substantial range extension. The abundance of the species in the coastal swamps at Discovery Bay might indicate that the widespread draining of lowland swamps around Melbourne has resulted in the beetle's disappearance from areas where it once occurred.

The apparent feeding of *M. flavovittata* on pollen and plant exudates accords with similar observations on the related *M. frenata* (see Introduction) and might indicate that this habit is more widespread in members of *Micraspis*. Hales *et al.* (1986) reported *Coccinella transversalis* Fab., 1781 feeding on dead fish exudates. Although numerous adults were seen, no mating was observed during any of the visits.

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References

- ANDERSON, J.M.E. and HALES, D.F. 1983. *Micraspis lineata* (Thunberg) (Coleoptera: Coccinellidae - seasonality and food. *General and Applied Entomology* 15: 47-52.
- ATLAS OF LIVING AUSTRALIA. 2015. [Accessed March 2015]. Available at: <http://bie.ala.org.au/species/Micraspis+flavovittata>
- CROTCH, G.R. 1874. *A revision of the Coleopterous Family Coccinellidae*. E.W. Janson, London; xv + 311 pp.
- HALES, D.F., ANDERSON, J.M.E. and van BRUNSCHOT, K.A. 1986. Aggregation in Australian ladybirds. Pp 205-210, in :Hodek I. (ed.), *Ecology of Aphidophaga*. Academia, Prague & Dr W Junk, Dordrecht.
- HAWKESWOOD, T.J. 1994. Notes on the Australian ladybird beetle *Micraspis frenata* (Erichson) (Coleoptera: Coccinellidae) feeding on nectar from *Asclepias* and *Gomphocarpus* flowers (Asclepiadaceae). *Giornale Italiano di Entomologia* 7: 67-71.
- HAWKESWOOD, T.J. and TURNER, J.R. 2002. Observations on the adults of *Micraspis frenata* (Erichson, 1842) (Coleoptera: Coccinellidae) feeding on the pollen of native and non-native grasses (Poaceae) in eastern New South Wales. *Journal of Entomological Research Society* 4: 21-29.
- POPE, R.D. 1989. Revision of the Australian Coccinellidae (Coleoptera) Part 1. Subfamily Coccinellinae. *Invertebrate Taxonomy* 2: 633-735.
- RICHTER, R. 2009. Discovery of a new population of *Hemiphebia mirabilis* (Ancient Greenling). *Victorian Entomologist* 39: 27-29.
- SLIPINSKI, A. 2007. *Australian ladybird beetles (Coleoptera: Coccinellidae): their biology and classification*. Australian Biological Resources Study, Canberra; 286 pp.